DOCUMENT RESUME

ED 276 312 FL 016 294

AUTHOR Heikkinen, Hannele
TITLE Errors in Lexical Processing.
PUB DATE 83
NOTE 12p.; In: Psycholinguistics and Foreign Language Learning. Papers from a conference (Stockholm, Sweden and Abo, Finland, October 25-26, 1982); see FL 016 291.
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Error Analysis (Language); *Error Patterns; Finnish; Foreign Countries; *Interpersonal Communication; *Language Processing; Psycholinguistics; Psychological Patterns; *Second Language Learning; Second Languages; Stress Variables; Uncommonly Taught Languages; *Vocabulary Development

ABSTRACT

A study examines differences in lexical processing in first and second languages through error patterns in speech. The investigation assumes that although the internal planning of speech cannot be examined, it is manifested in output errors, such as slips of the tongue, writing errors, aphasic speech, and some temporal properties of speech, and can be elicited in responses to some psycholinguistic tests. An examination of errors in the first and second language processing of Finnish speakers suggests that lexical errors are different in the two languages. It is concluded that errors reflect individual stress and various situational and interactional factors, and that these factors deserve more attention in the study of speech. (MSE)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

BEST COPY AVAILABLE

ED276312

ERRORS IN LEXICAL PROCESSING

Hannele Heikkinen
Department of Phonetics

University of Jyvaskyla

FL 016 294

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

● This document has been reproduced as received from the person or organization originating it.

□ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

N. Enkvist

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Hannele Heikkinen
Department of Phonetics,
University of Jyväskylä

ERRORS IN LEXICAL PROCESSING

Introduction

This paper deals with similarities and differences in foreign language and native language processing, as seen from a lexical point of view. I focus here on the production of speech, ie. the search for and use of words. The planning of speech as such is not open to direct observation, since it is something that takes place in the speaker's mind. By studying certain aspects of output, however, we can get at least an approximate idea of what is taking place. Thus we can use slips-of-the-tongue, writing errors, aphasic speech or some temporal properties of speech, for example, to make some hypotheses and projections about inner speech. Various psycholinguistic tests can also be used to throw some light on lexical processing, eg. shadowing tests, reaction time tests or tip-of-the-tongue -tests. I discuss below the role of errors in lexical FL and NL processing mainly on the basis of speech error data of Finnish speakers. I discuss the influence of speech planning and monitoring on errors and also the influence and management of interactional situations.

Lexical errors and speech planning

Speech, naturally, is planned beforehand. Without going into any detail,[1] the planning procedure includes such phases as activation of the material needed for the utterance, selection of the material and its temporal organization. In the case of lexical processing, words are chosen from the mental lexicon and put into linear order. This, of course, is an oversimplified view of the procedure and there are problems of what exactly a word is, how the lexical organization is carried out, and whether there is more than one lexicon

etc. However, by an examination of the similarities and differences of NL and FL lexical processing, it could easily be supposed that the processes must differ. It is natural, and indeed obvious, to assume that a native language vocabulary is large and that its items are easily available. Native items are acquired steadily throughout an individual's life and usually in meaningful communicative situations. The environmental knowledge attached to the words is considerable. The situations in which a native speaker does not find words are rarer. On the other hand, a native speaker more often experiences another kind of difficulty: that of selecting the item that would convey his meaning precisely. That is, a native speaker often has more than one possibility to express his idea. This situation results in eg.lexical blends.[2]

The speaker wants to say 'We can't expect them to ...'. He hesitates between two possible words for 'expect': *odottaa* and *edellyttää*. What he says is 'Ei voi *odelluttaa* ...': a blend of the two synonymous items.

A similar situation, ie. the existence of more than one candicate for the same lexical position, is also attested by the utterance in which the synonymous item is placed into a later sentence position.

The speaker intends to say that she will change a temporary arrangement into a permanent one. She says 'Mä muutan sen *väliaikaisesta tilapäiseks'. Väliaikainen* and *tilapäinen* are both synonyms for temporary and thus she says she will make a temporary arrangement into a temporary one.

Moreover, lexical slips in the native language tend to be ones in which the slip and the target item are semantically related, not formally related. This is a reflection of the normal production process: when activating items, the whole "semantic field" is also activated and the items sometimes become confused.

An example of these very common slips is a question 'Ootko hiihtäny ollenkaan tänä *kesänä*?' 'Have you been skiing this *summer* at all?' When the listener looked questioningly at the speaker, he corrected himself 'I mean this *winter*. Was this one of those slips you are collecting?'

Such slips reflect the normal procedures of speech processing. However, when speaking a foreign language, the problems of a speaker are presumably different. His vocabulary is not very large, and the items are not easily available: the speaker more often experiences word-finding difficulty. Thus the errors in lexical processing are also of a different type. The lexical errors of a foreign speaker tend to be slips related to malapropisms of a native speaker, ie. word substitutions on the basis of formal similarity.

> The following errors are committed by Finnish speakers of English. One speaker claims that 'tests of *audible* perception ...' have proved something, another one states that the question was *appreciate* instead of *appropriate*, while a third uses *instruction* instead of *introduction*, etc.

What is the reason for the presumed dominance of the malapropism-like lexical error in foreign language speech production? It can be suggested that when a speaker is faced with the situation in which the word is temporarily not available to him, he nevertheless knows something about the properties of a word and searches among the items that have similar features. That there are certain more salient properties of words is well attested by several experiments (see eg. Cole, Jakimik & Cooper 1978 for listening-for-mispronunciations -tests; Brown & McNeill 1966 for tip-of-the-tongue -tests and Fay & Cutler 1977 for malapropism data). These salient properties include the initial and final segments of a word and its syllable number and stress pattern. When searching among the items that share some or all of these features, the speaker sometimes makes an erroneous decision, ie. selects a wrong word. This happens more often in foreign language processing, since foreign items are not as fully established and are used more seldom than native ones. Language teaching methods can also be regarded as influencing such errors: if words are learned as formal items, eg. as lists of translation equivalents in dictionaries or in textbooks, and not in textual contexts and interactional situations, it is natural that the formal properties are emphasized.

Thus the reasons for lexical processing errors in the native language and a foreign language are slightly different. The native errors tend to be 'fluent', ie. they reflect the fact that the speaker has a well-established lexicon, to the items of which he has easy access. On the other hand, foreign language errors tend to be 'disfluent'. They reflect the fact that the speaker has diffi-

culties in obtaining access to the items.[3] It also appears that the boundary between a mistake and a slip is not very clearcut. In fact, the errors made in foreign language processing and malapropisms are somewhere in between. It can be claimed that a mistake is something that is in accordance with the speaker's intention but violates the rules of the linguistic community around him. A slip would be something that is against the speaker's intention and something that he, in most cases, is able to correct. For obvious reasons, however, the intention of the speaker cannot always be known. Furthermore, it can be doubted whether the speaker can or is willing to discuss such things, even when asked. Malapropisms, for example, can probably be recognized as wrong items by the speakers, but only if the matter is brought to their attention.

Lexical errors and speech monitoring

Monitoring is a process which can detect errors in the speech plan or in speech execution. This process effectively covers our speech production most of the time, but, as shown by the occurrence of slips, is not automatic. The monitoring of the linguistic correctness of the message can perhaps be seen as a part of a more total process that takes care of such factors as the selection of the topic of conversation, avoidance of certain topics, selections of a suitable register or degree of formality etc. If monitoring is seen as such a process, it seems natural that the system is attuned to take care of different kinds of slips according to the situation. Thus native speakers are more concerned about the 'sociolinguistic' or interactional correctness and pay attention to such factors. In foreign language speech situations the main emphasis seems to be on linguistic correctness, and – owing to language teaching methods – especially on formal correctness. Thus the difference between native language and foreign language errors may also be partly attributed to the properties of monitoring.

It is rather obvious that the slips that native speakers commit are very trivial. Speakers confuse things that no adult speaker is supposed to confuse.

'Onks toi Tuula Pekan pikku*veli*?' 'Is she his little *brother*?' is a confusion of one of the most basic lexical items *veli* and *sisko*, 'brother' and

'sister'. Not even the monitor system can suppose that anyone would presume that a woman could be anybody's brother.

In other words, everyday concepts and common words are taken for granted. Perhaps this is also why they are very easily involved in slips, and slips of this type are in fact extremely common.

A small test carried out in the Speech Research Laboratory at the University of Jyväskylä may also throw some light on the properties of monitoring. The test measured the reaction times and the correctness of reactions to Finnish sentences that included deliberate errors made to resemble slips of spontaneous speech. The detection of errors in test sentences naturally differs from the process of monitoring one's own speech, but probably involves certain similarities as well. The test subjects (N=7) heard 30 sentences, of which 10 were correct and 20 included an error. The types of slips were as follows: 1. word substitutions in which the substitution was semantically related to the correct item, eg. 'Tämän viikon *radio*-ohjelmassa on amerikkalainen elokuva Sinuhe Egyptiläinen' 'This week the *wireless* presents the American film "The Egyptian"', 2. word substitutions in which the substitution was phonologically related to the correct item, eg. 'Perinnöllisyystutkija Aarno Mäki totesi *indefiniittisten* kaksosten määrän kasvaneen huomattavasti' 'The geneticist Aarno Mäki stated that the amount of *indefinite* twins has increased considerably', 3. blends, eg. 'Markkinoille tullut uusi margariini on *houkullista* ja helppolevitteistä' 'The new margarine is delicious and easy to spread', in which the word *houkullista* is a partitive case of a blend of two words ie. *herkullinen* 'delicious' and *houkutteleva* 'tempting', and 4. segmental transpositions eg. 'Lapuan *p*iippakunnan *h*iispa avasi eilen Turun piispainkokouksen', in which the initial segments of *hiippakunnan piispa* have been transposed. 'The bishop of the diocese of Lapua opened the episcopal conference'. The subjects had to decide whether the sentence was an acceptable Finnish sentence by pushing a button. The following table summarizes the results.

Table 1. Reaction times and correctness of reactions in different types of error.

	Correct reactions (%)	Average reaction time (msec)
Formal word substitutions	54	1880
Semantic word substitutions	86	2090
Blends	75	2140
Segmental transpositions	100	1370

The results indicate that slips involving segmental transpositions are easiest noticed: they were observed without exception. This may be due to the fact that such slips produce non-words. The word is, as shown by recent experimental research[4] a central unit in speech perception: it seems justified to assume that non-words are picked out more easily. It is also clear that slips involving the whole word were noticed more irregularly. There was much more hesitation, which means longer reaction times. The formal word substitutions, ie. those resembling spontaneous malapropisms, were the most difficult to detect. The listeners were ready to accept the incorrect sentences in almost half the cases. Both the speakers and the listeners tend to make mistakes as regards the more infrequent words: speakers tend to use words that share formal properties with the correct one and the listeners tend to accept these words. It is also rather interesting that blends were rather difficult to detect. This is not so surprising, however: it is well-known, for example, that blends are potential candidates for linguistic innovations. They somehow seem to have a high probability, since they can unite two separate but related meanings, as in the case of 'delicious' and 'tempting' for example, or they offer an expressive way of saying things briefly and effectively.[5] The present writer, for example, had to consult a dictionary before she was convinced that there was no such word as *irtoimenaan* in Finnish, but that it was a blend of *irrallaan* and *valtoimenaan*, meaning approximately 'unleashed'.

Lexical errors and the speech situation

In native language speech processing, the effect of the outward speech situation seems more noticeable. Thus the things the speaker sees, hears, feels, or

happens to think may influence the output of speech more than when speaking a foreign language.

> Somebody is looking for scissors and he is instructed 'Ne on siinä *nauhassa*', instead of the correct 'Ne on siinä *naulassa*' 'They are hanging on the *tape*' instead of 'They are hanging on the *nail*'! The slip was influenced by the fact that there was some recording tape hanging on the same nail as the scissors.

The situation is in fact a decisive factor in the definition of a slip: there are many slips that do not violate any linguistic or pragmatic rule. They are impeccable utterances in every other respect except one: they do not fit the interaction, and so they are wrong from the point of view of what is happening, or what is presumed by the participants of the interactions.

> The speaker is going to the post office but she says: 'Mun täytyy mennä *pankkiin*' 'I must go to the *bank*'. The slip can thus be recognized only by the speaker or by someone who knows the situation and the intention of the speaker.

On the other hand, when speaking a foreign language, the speaker focuses more on the linguistic programming, as mentioned above. This also means that the causes for his slips can be found more in his linguistic knowledge and methods of processing, ie. his errors tend to result from the inside rather than from the outside. There is evidence, for example, that foreign language learners tend to ignore the outward situation and thus also miss the important non-verbal cues in the conversation (cf. Valokorpi 1981).

Lexical errors and their management

From the point of view of interaction, it is also interesting to study how people manage a problematic situation, ie. what happens if they do not find a word immediately, or if they commit a slip. If a native speaker does not immediately find a suitable word he does not seem to become anxious or nervous. He usually seems to pay no attention to such a situation at all: he is able to explain what he tries to say by means of a paraphrase. In addition,

he may convey his idea by using some other form of expression, eg. a gesture or a facial expression. Or, when searching for a word, he may win time by using empty phrases or expressions like 'what-do-you-call-it' etc. Unfortunately, foreign language speakers seem to be more anxious as regards these situations. Foreign speakers are more apt to awkward pauses, for example, since they often lack the above-mentioned procedures when communicating in a foreign language. Also, especially in test or teaching situations, knowing that their interactants know their mother tongue, they tend to resort to their native language.

A Finnish speaker who is doing a picture describing task in English does not remember the word 'fountain pen' and uses a Finnish word instead: 'There is something wrong with your ... *täytekynäs*'. There is, however, an English plural suffix to show that she knows what she's doing.

It is obvious that more attention should be given in language teaching to the various mechanisms of natural conversation and in this way relieve the anxiety felt in linguistically problematic situations.

If slips actually occur, native speakers are usually able to make fast corrections. For example, in the middle of a word, when the speaker realizes that he is going to say something wrong, he can correct himself. On the whole, however, it often happens that the corrections are too fast, ie. he is eager to correct, but acts too fast. This can of course lead to situations that resemble the line of thought of a Marx Brothers comedy, and that are delightful for a slip corrector.

A speaker wants to express how tanned she was the summer before. Her intention is to say 'Mä olin ruskee kun *papu*', using a Finnish idiom literally meaning 'brown as a bean'. What she actually says is 'Mä olin *ruskee kun papukaija*', meaning 'I was brown as a parrot'. Very quickly she realizes she has made a wrong comparison: parrots are not brown. She corrects herself: 'Tai paremminki *vihree kun papukaija*'. 'I mean green as a parrot', stressing the word *green* emphatically, and completely confusing her original idea.

Conclusion

I have suggested above that lexical errors are different in NL and FL processing, and discussed some of the reasons for this. I have compared the behaviour of the fluent native speaker to that of a foreign learner who has had a rather formal teaching, with an emphasis on the linguistic code and not on communication. In everyday communication, most of the speakers, whether native or foreign, probably behave in a way that lies between these two opposite points; some people experience considerable stress when speaking their mother tongue and some people feel no anxiety in communicating in a language of which they have very little knowledge. I think, however, that the influence of the situational and interactional factors can also be clearly seen in the resulting errors, native and foreign. This fact has received little attention in the present discussion of speech error data, which is linguistically oriented, and thus needs further investigation.

NOTES

1. For a fuller discussion on the properties of speech planning, see eg. Butterworth 1980 or Laver 1980.
2. There are other types of blends, see eg. Fay 1982.
3. The concept of fluent and disfluent errors can also be applied in reading errors as well. As shown by eg. Lehtonen & Heikkinen (1981), errors in reading may have different causes.
4. See eg. Cole & Jakimik (1980).
5. That blends seem to cause aesthetic experiences can be seen in the fact that they are much used in advertisements and in fiction as well.

REFERENCES

Brown R. & D. McNeill (1966), The "Tip-of-the-tongue" phenomenon. *Journal of Verbal Learning and Verbal Behaviour*, 5, 325-337.

Butterworth, B. ed. (1980), *Language production*. London: Academic Press.

Cole, R.A. & J. Jakimik (1980), A model of speech perception. R.A. Cole (ed.) *Perception and production of fluent speech*. Hillsdale, N.J.: Lawrence Erlbaum, 133-164.

Cole, R.A. & J. Jakimik & W.E. Cooper (1978), Perceptibility of phonetic features in fluent speech. *Journal of the Acoustical Society of America* 64, 44-56.

Fay, D. (1982), Substitutions and splices: a study of sentence blends. Cutler, A. (ed.), *Slips of the tongue and language production*. Berlin: Mouton Publishers 163-196.

Fay, D. & A. Cutler (1977), Malapropisms and the structure of the mental lexicon, *Linguistic Inquiry* 8, 3, 505-520.

Laver, J. (1980), Monitoring systems in the neurolinguistic control of speech production. Fromkin, V. (ed.), *Errors in linguistic performance*. New York: Academic Press, 287-306.

Lehtonen, J. & H. Heikkinen (1981), Anglismit ja tekstin luettavuus. *Virittäjä* 4/1981, 327-339.

Valokorpi, P. (1981), Non-verbal elements in foreign language communication. Sigurd, B. & J. Svartvik (eds.), *AILA 81: Proceedings I*. Lund: University of Lund, 477-488.